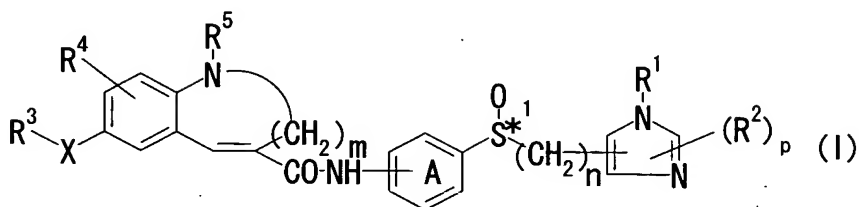


CLAIMS

1. A process for preparing an optically active compound represented by the formula (I):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be

substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R^3 represents an optionally substituted 5- or 6-membered ring; R^4 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted lower alkoxy group or a halogen atom;

R^5 represents a hydrogen atom, an optionally

substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted sulfonyl group, an esterified or amidated carboxyl group or an optionally substituted acyl group;

5 X represents a bond or a divalent group containing a linear part constituted of 1 to 4 atoms;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

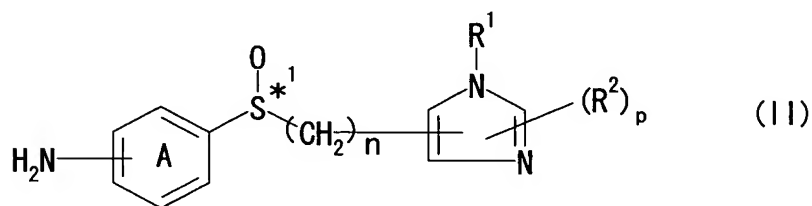
m is an integer of 1 to 5;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*¹ represents an asymmetric center,

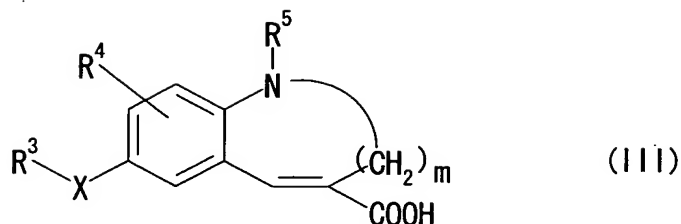
15 or a salt thereof, which comprises reacting an optically active compound represented by the formula (II):



wherein each symbol is as defined above,

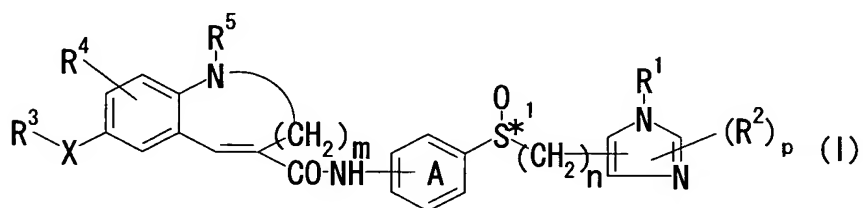
or a salt thereof, with a compound represented by the formula (III):

20



wherein each symbol is as defined above, a salt thereof, or a reactive derivative thereof.

2. A process for preparing an optically active
5 compound represented by the formula (I):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

- 10 R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
15 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R^3 represents an optionally substituted 5- or 6-

membered ring;

R^4 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted lower alkoxy group or a halogen atom;

5 R^5 represents a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted sulfonyl group, an esterified or amidated carboxyl group or an optionally substituted acyl group;

10 X represents a bond or a divalent group containing a linear part constituted of 1 to 4 atoms;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

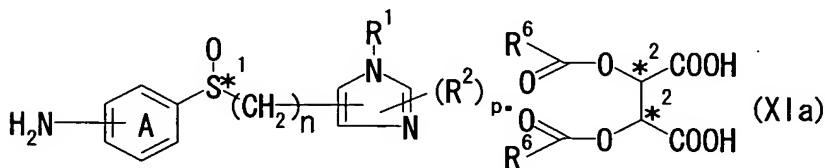
m is an integer of 1 to 5;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

$*^1$ represents an asymmetric center,

20 or a salt thereof, which comprises reacting an optically active compound represented by the formula (XIa):



wherein R^6 represents a methyl group, a phenyl group,

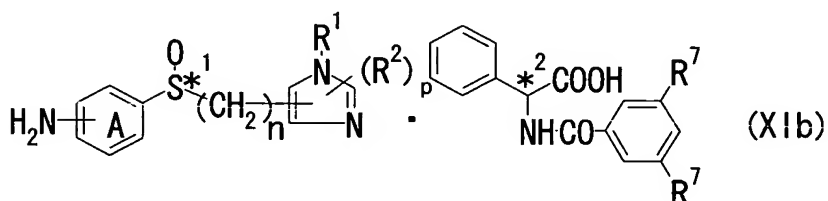
a 4-methylphenyl group or a α -naphthyl group;

*² represents an asymmetric center; and

the other symbols are as defined above,

or an optically active compound represented by the formula

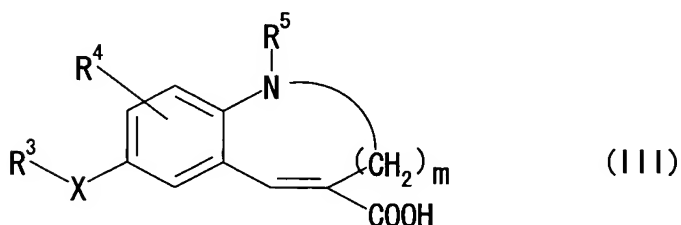
5 (XIb):



wherein R^7 represents a hydrogen atom, a chlorine atom or a nitro group; and

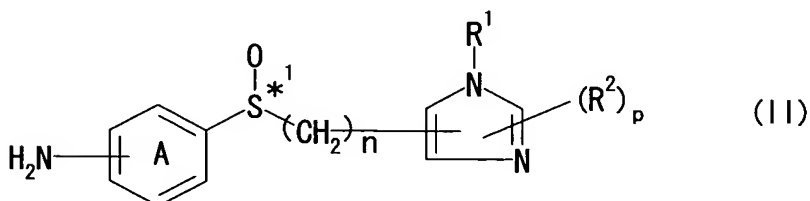
the other symbols are as defined above,

10 with a compound represented by the formula (III):



wherein each symbol is as defined above, a salt thereof or a reactive derivative thereof.

3. An optically active compound represented by the
15 formula (II):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

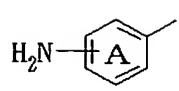
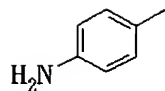
n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

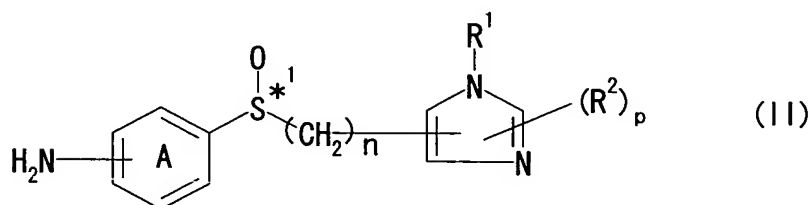
\ast^1 represents an asymmetric center, or a salt thereof.

4. The optically active compound according to claim 3, wherein R^1 and R^2 each represents a C_{1-6} alkyl group; and n represents 1 or 2, or a salt thereof.

5. The optically active compound according to claim 3, wherein R^1 represents a C_{1-6} alkyl group; p represents 0; n represents 1; and


 represents , or a salt thereof.

6. A process for preparing an optically active compound represented by the formula (II):



5 wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

10 R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an

15 optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

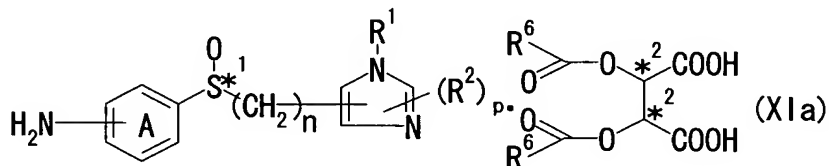
20 the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

*¹ represents an asymmetric center,

or a salt thereof, which comprises subjecting an optically active compound represented by the formula (XIa):

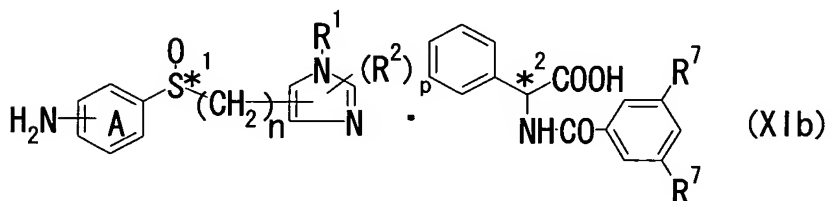


wherein R⁶ represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

*² represents an asymmetric center; and

the other symbols are as defined above,

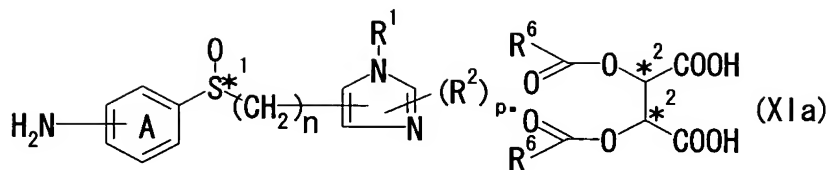
10 or an optically active compound represented by the formula (XIb):



wherein R⁷ represents a hydrogen atom, a chlorine atom or a nitro group; and

15 the other symbols are as defined above, to a metathesis reaction.

7. An optically active compound represented by the formula (XIa):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

5 R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
10 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

15 R^6 represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

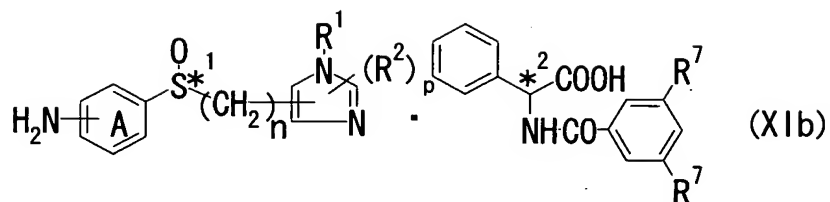
the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

20 n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

$*^1$ and $*^2$ each represents an asymmetric center,
or an optically active compound represented by the formula

(XIb) :



wherein R^7 represents a hydrogen atom, a chlorine atom or a nitro group; and

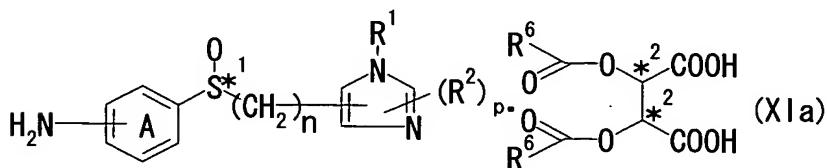
the other symbols are as defined above.

8. The optically active compound according to 7, wherein R^1 and R^2 each represents a C_{1-6} alkyl group; n represents 1 or 2; and R^6 represents a 4-methylphenyl group or R^7 represents a nitro group.

9. The optically active compound according to 7, wherein R^1 represents a C_{1-6} alkyl group; p represents 0; n represents 1;

represents ; and R^6 represents a 4-methylphenyl group or R^7 represents a nitro group.

10. A process for preparing an optically active compound represented by the formula (XIa):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally

substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

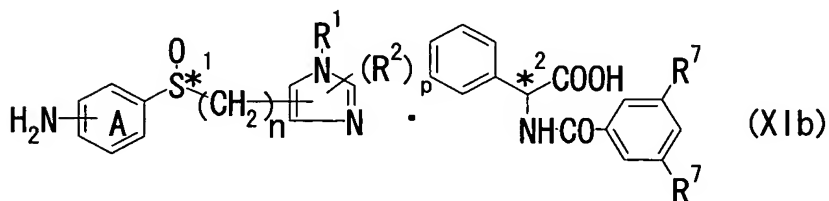
R^6 represents a methyl group, a phenyl group, a 4-methylphenyl group or a α -naphthyl group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

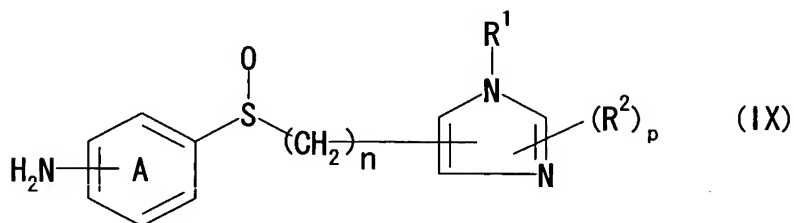
$*^1$ and $*^2$ each represents an asymmetric center, or the formula (XIb):



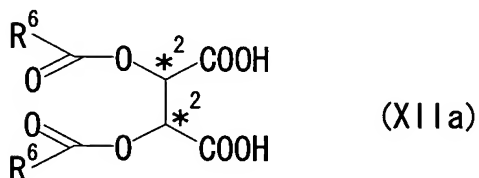
wherein R^7 represents a hydrogen atom, a chlorine atom

or a nitro group; and

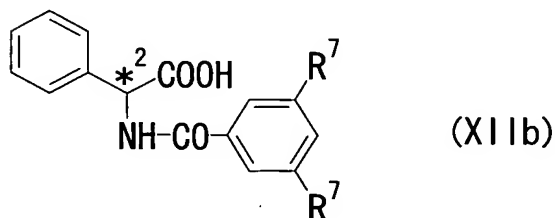
the other symbols are as defined above,
which comprises subjecting a compound represented by the
formula (IX):



wherein each symbol is as defined above,
or a salt thereof, to optical resolution with an optically
active compound represented by the formula (XIIa):

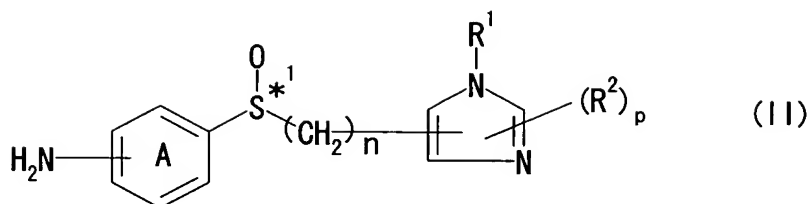


wherein each symbol is as defined above,
or an optically active acid represented by the formula
(XIIb):



wherein each symbol is as defined above.

11. A process for preparing an optically active
compound represented by the formula (II):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

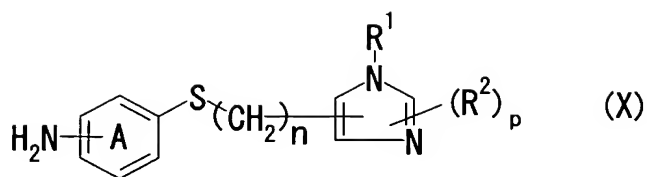
5 R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
10 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be
15 substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

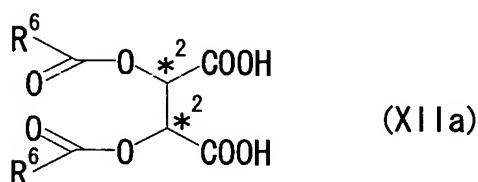
n represents an integer of 0 to 3;

p represents an integer of 0 to 2; and

20 $*^1$ represents an asymmetric center,
or a salt thereof, which comprises oxidizing a compound represented by the formula (X):

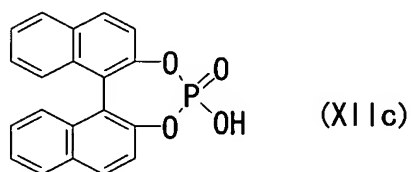


wherein each symbol is as defined above,
or a salt thereof in the presence of an optically active
compound represented by the formula (XIIa):

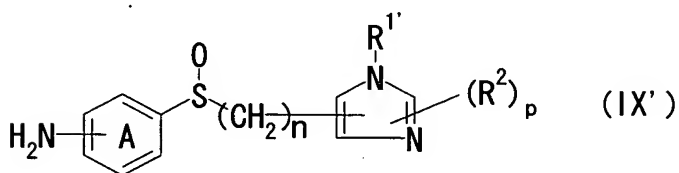


wherein R^6 represents a methyl group, a phenyl group,
a 4-methylphenyl group or a α -naphthyl group; and

*^2 represents an asymmetric center,
or an acid which is optically active with respect to axial
asymmetry, and represented by the formula (XIIc):



12. A compound represented by the formula (IX'):



wherein $\text{R}^{1'}$ represents an optionally substituted
aliphatic hydrocarbon group or an optionally substituted
aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano

group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

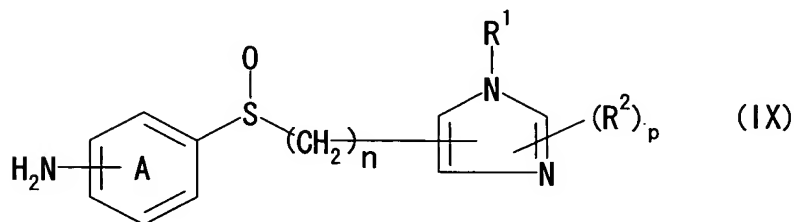
the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof.

13. A process for preparing a compound represented by the formula (IX):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano

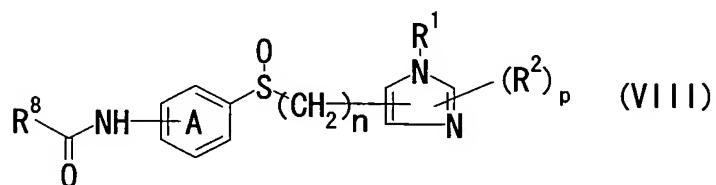
group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

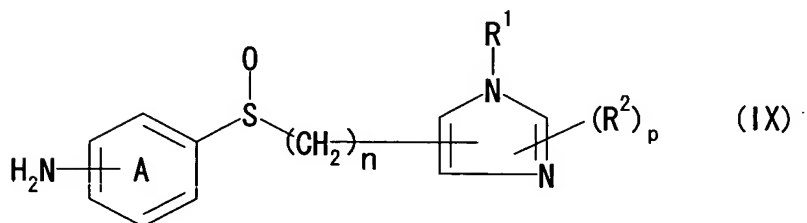
or a salt thereof, which comprises subjecting a compound represented by the formula (VIII):



wherein R^8 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or $-OR^{10}$ wherein R^{10} represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group; and

the other symbols are as defined above,
or a salt thereof, to a deprotection reaction.

14. A process for preparing a compound represented by
the formula (IX):



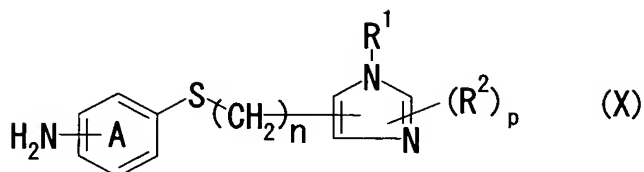
wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

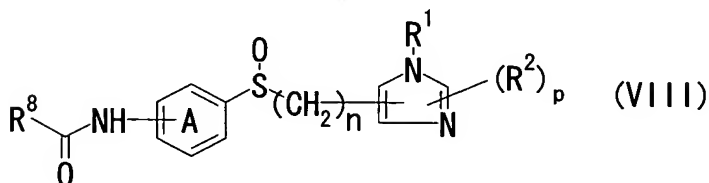
n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,
or a salt thereof, wherein a compound represented by the
formula (X):



wherein each symbol is as defined above,
or a salt thereof is oxidized.

15. A compound represented by the formula (VIII):



wherein R^1 represents a hydrogen atom, an optionally
substituted aliphatic hydrocarbon group or an optionally
substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano
group, an optionally substituted alkyl group, an optionally
substituted cycloalkyl group, an optionally substituted
hydroxyl group, an optionally substituted thiol group (the
sulfur atom may be oxidized to form a sulfinyl group that
may be substituted or a sulfonyl group that may be
substituted), an optionally substituted amino group, an
optionally substituted acyl group, an optionally esterified
carboxyl group or an optionally substituted aromatic group;

R^8 represents a hydrogen atom, an optionally

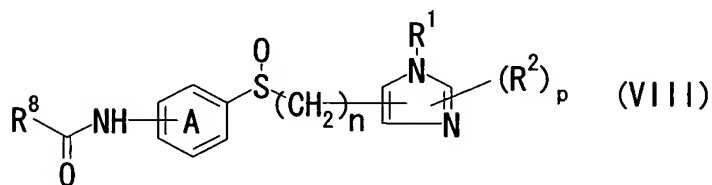
substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,
or a salt thereof.

16. A process for preparing a compound represented by the formula (VIII):



wherein R¹ represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R² represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that

may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

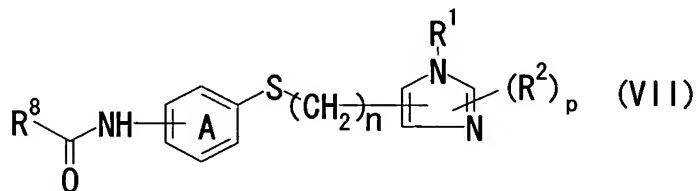
5 R^8 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or - OR^{10} wherein R^{10} represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an
10 optionally substituted aralkyl group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

15 n represents an integer of 0 to 3; and

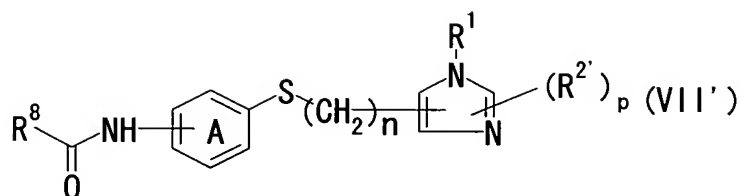
p represents an integer of 0 to 2,

or a salt thereof, which comprises oxidizing a compound represented by the formula (VII):



20 wherein each symbol is as defined above,
or a salt thereof.

17. A compound represented by the formula (VII'):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

5 $R^{2'}$ represents a halogen atom, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that
10 may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

R^8 represents a hydrogen atom, an optionally
15 substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or - OR^{10} wherein R^{10} represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group;

20 the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy

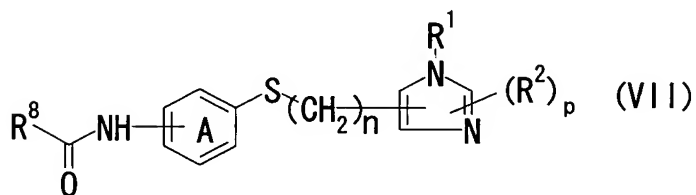
group which may be substituted with a halogen atom;

n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof.

- 5 18. A process for preparing a compound represented by the formula (VII):



10 wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

15

20 R^8 represents a hydrogen atom, an optionally substituted lower alkyl group, an optionally substituted aryl group, an optionally substituted aralkyl group or -

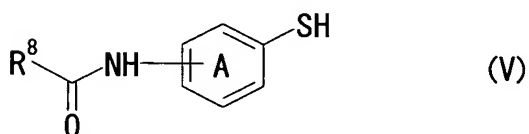
OR¹⁰ wherein R¹⁰ represents an optionally substituted lower alkyl group, an optionally substituted aryl group or an optionally substituted aralkyl group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

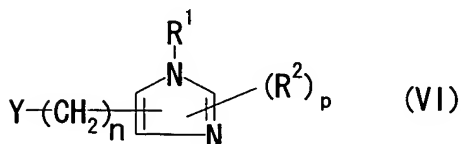
n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof, which comprises reacting a compound represented by the formula (V):



wherein each symbol is as defined above, or a salt thereof, with a compound represented by the formula (VI):

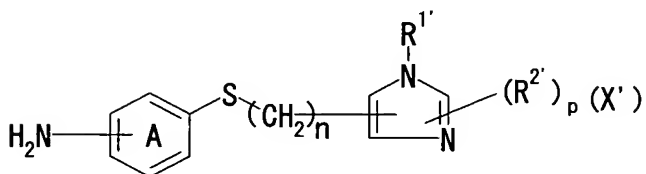


wherein Y represents a halogen atom or a group represented by the formula -OSO₂-R⁹ wherein R⁹ represents a lower alkyl group or an optionally substituted aryl group; and

the other symbols are as defined above,

or a salt thereof.

19. A compound represented by the formula (X'):



5 wherein R^{1'} represents an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

 R^{2'} represents a halogen atom, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

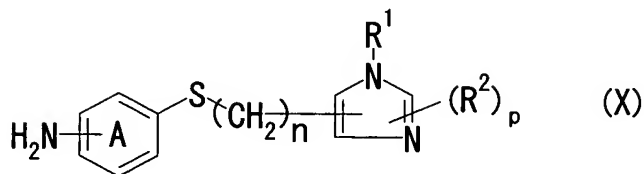
10 the ring A represents a benzene ring which may be substituted with a halogen atom, a C₁₋₄ alkyl group which may be substituted with a halogen atom or a C₁₋₄ alkoxy group which may be substituted with a halogen atom;

15 n represents an integer of 0 to 3; and

 p represents an integer of 0 to 2,

20 or a salt thereof.

20. A process for preparing a compound represented by the formula (X):



wherein R^1 represents a hydrogen atom, an optionally substituted aliphatic hydrocarbon group or an optionally substituted aromatic group;

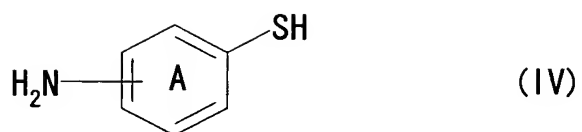
R^2 represents a halogen atom, a nitro group, a cyano group, an optionally substituted alkyl group, an optionally substituted cycloalkyl group, an optionally substituted hydroxyl group, an optionally substituted thiol group (the sulfur atom may be oxidized to form a sulfinyl group that may be substituted or a sulfonyl group that may be substituted), an optionally substituted amino group, an optionally substituted acyl group, an optionally esterified carboxyl group or an optionally substituted aromatic group;

the ring A represents a benzene ring which may be substituted with a halogen atom, a C_{1-4} alkyl group which may be substituted with a halogen atom or a C_{1-4} alkoxy group which may be substituted with a halogen atom;

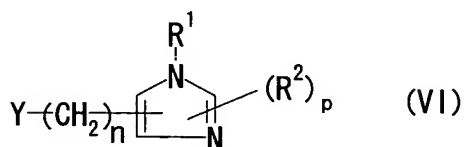
n represents an integer of 0 to 3; and

p represents an integer of 0 to 2,

or a salt thereof, which comprises reacting a compound represented by the formula (IV):



wherein the ring A is as defined above,
or a salt thereof, with a compound represented by the
formula (VI):



wherein Y represents a halogen atom or a group
represented by the formula $-\text{OSO}_2-\text{R}^9$ wherein R^9 represents a
lower alkyl group or an optionally substituted aryl group;
and

the other symbols are as defined above,
or a salt thereof.